

energy beam transport line (3), a linac (4) for ion beam acceleration up to the energy required for a particular application, according to claim 1, and furthermore if necessary a high energy beam transport line (5), and an area or device (6) where the accelerated beam is used.

11.(Amended) Method for accelerating a ion beam in a linac, wherein the ion beam, preliminary collimated, pre-accelerated, focused and if necessary steered in a low energy beam transport line (3), is injected into a linac (4) according to claim 1 in which:

- the beam acceleration is obtained by radiofrequency electric fields whose level is substantially constant in all said accelerating gaps (20) belonging to the same module (7, 7A) foreseen in the linac (4), said module or modules (7, 7A) present a single input (12) for the RF power, for each module (7, 7A) foreseen, where said single input (12) for RF power is connected with a single modified coupling structure (9A),
- the transverse focusing is obtained with magnetic fields produced by quadrupoles (18), preferably provided between two or more accelerating structures (8),
- furthermore at the linac (4) output, the accelerated ion beam is if necessary steered in a higher energy beam transport line (5) in the area or to the device (6) where it is to be used.

13.(Amended) Use of a linac or a system comprising a linac according to claim 1 for medical applications.

14.(Amended) Use of a linac or a system comprising a linac according to claim 1 for fundamental and applied research and related applications.

15.(Amended) Use of a linac or a system comprising a linac according to claim 1 for the production of average beam currents superior to 10 μ A for research and related applications.